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L20: Entry 1 of 16 File: USPT Mar 11, 2003

DOCUMENT-IDENTIFIER: US 6530956 B1
TITLE: Resorbable scaffolds to promote cartilage regeneration

Detailed Description Text (13):
However, it should be noted that the two distinct types of matrix material (i.e., the stiffer material in load-sharing scaffold 10, and the cell-growth material in matrix segments 19) might, if desired, be made from a single set of shared feedstock (such as collagen fibers or polymeric material) which has been treated differently in a manner that generates higher strength in the load-sharing portions and higher porosity in the cell-growing portions. As one example, a first aliquot from a batch of collagen fibers can be poured into a mold to form scaffold 10, and then subjected to a first cross-linking reaction. Subsequently, a second aliquot from the same batch of collagen fibers might be poured into the internal compartments of scaffold 10, and the entire set of material can be subjected to a second cross-linking reaction.

Detailed Description Text (67):
In general, collagen fibers are not well-suited for resisting compression. Like a strong rope or piece of string, they are good at withstanding and resisting tension, but they simply bend and fold if subjected to longitudinal compression. For this reason, collagen matrices with a desired level of porosity tend to be relatively weak, squishy, and sponge-like, especially under wet conditions. This lack of structural strength is also due to the fact that the porosity levels in collagen matrices designed to promote cell ingrowth are usually very high; typically, more than 90% of the volume of a cell-growing collagen matrix is pore space, where the cells will grow. Therefore, the collagen matrices disclosed in the prior art do not offer good candidates for use as load-bearing components, in load-sharing scaffolds as disclosed herein.